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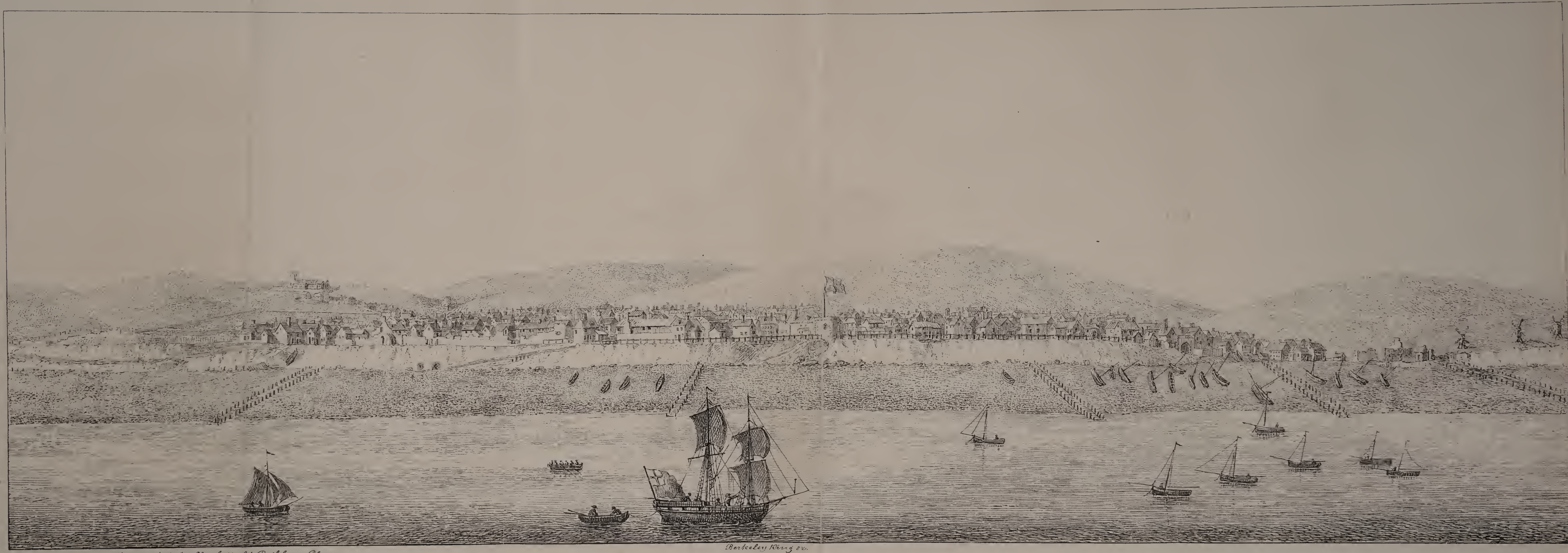
To William Bolling Esqre
from the Editor



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South View of BRIGHTON in the Year 1743.

From a Drawing by C Lempriere.

A

SHORT HISTORY

OF

BRIGHTHELMSTON,

WITH REMARKS ON ITS AIR, AND AN ANALYSIS OF ITS WATERS,

PARTICULARLY OF AN UNCOMMON MINERAL ONE LONG DISCOVERED, THOUGH BUT LATELY USED.

Οκόσαι μὲν τω̃ν πόλεων κέονται γε καλως τȣ͂ ἡλίȣ, καὶ τω̃ν πνευμάτων, ὕδασί τε χρέονται αγαθοῖσιν, αὗταί μεν ῞ησσον αἰσθάνονται τῶν τοιȣτέων μετα βολέων.

ΙΠΠΟΚΡΑΤΗΣ.

By **ANTHONY RELHAN, M.D.**

Fellow of the Royal College of Physicians in Ireland,

PUBLISHED IN 1761—RE-EDITED 1829.

" Of all the public places I have been at I like none so well as Brighthelmston."

Lord Chief Justice Wilmot, 1763.

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To NATHANIEL KEMP, Esq.

Sir,

In re-editing the work of an eminent and learned Physician, whose services to my native town are in the grateful recollection of the few who remember him, I cannot repel my desire of inscribing it to you.

The dissertation of Dr. Russell concerning the use of sea-water in glandular complaints published in 1750, first attracted the notice of invalids, and induced them to seek for relief in the healing waves and salubrious air of this (then) humble town.

The work of Dr. Relhan now re-edited, (published eleven years after that of Dr. Russell) contributed more essentially to the true interests of the place, by opening its salubrity, not to the cure of one particular species of complaint, but to many: and his annual periods of residence, his professional skill gratuitously administered, and his talents and conversation, induced many to prefer this to any other spot for the renovation of their health.

In rendering justice to our Physicians, the early patrons of the town, it is with great pleasure that I take this opportunity of expressing my obligations, (nor mine only,) for services of higher importance contributed to it by you.

More than forty years ago, when the population of the town had doubled since the year in which Dr. Relhan wrote his history, you were principally the means of establishing a Sunday School and School of Industry here. As population has increased, so have your exertions been multiplied, and with your benefactions, extended to every Institution calculated to reform or amend the morals, and to promote the real happiness of the abundant poor classes of that vast society which our town now comprehends.

I am, Sir,

With great respect,

Your very obedient Servant,

JAMES CHARLES MICHELL.

BRIGHTHELMSTON,
July, 1829.

INTRODUCTION.

IN re-editing this work, I have not the materials for compiling as I could have wished, a more satisfactory biographical history of its learned and accomplished Author.—It is gratifying to me to state, that this Benefactor to my native place, was born and educated in Ireland; because my connection with that country has laid me under deep and lasting obligations to it; and I should be ungrateful, were I not to avail myself of this opportunity, to acknowledge the many kind attentions which my family have received from one of the same country and profession with our historian, whose long residence and practice among us have been rewarded with well merited honours from his Sovereign, and with the universal respect due from ourselves.

Dr. Anthony Relhan was elected a Fellow of the King and Queen's College of Physicians, October 1747. This appointment implies his having taken a regular degree in medicine in one of the British Universities, most probably in that of Dublin. He was elected President of the College in October 1755, and attended in his place there for the last time in 1756. In the Records of the College he is stated in 1760 as being abroad, and from 1761 his name no longer appears.

From a statement made by a medical gentleman of Dublin who is old enough to remember the circumstance, it appears that the Doctor having prescribed James's Powder about the year 1758, the College of Physicians at Dublin resented this encouragement given to a quack medicine, and refused to join with him in consultation. Dr. Relhan then opened a correspondence with Dr. James, through whose persuasion he was induced to settle in London.

In a temporary visit to Dublin in 1760, Dr. Relhan communicated to Mr. Ducros, an eminent Apothecary of that city, the process for preparing James's powder, as he had been taught it by Dr. James.

In 1764, Dr. Relhan became a Member of the College of Physicians in London, in which year he published a Treatise on Inoculation; and his name appears upon the Catalogues of that College until

1775. The Doctor was twice married. Before his connection with the Town, of which he became the brief historian, he resided in Southampton-street, Covent Garden. By his first lady he had a son who graduated at Cambridge, and entered into holy orders, and a daughter.—His second wife was the widow of Sir William Hart, a Banker in London. This lady had built a house in East-street, Brighthelmston, for her summer residence; and here the Doctor and Lady Hart annually passed some months, until his death in 1776.—Lady Hart continued her occasional residence until 1789, whan she disposed of the property to its present possessor.

That Dr. Relhan was a scholar, may be inferred from a classical and ingenious production entitled "De arte medendi apud priscos musices ope atque "carminum," first published in 1765, and contained in an epistle from its learned author to the Doctor, who is there described as "Collegii Medicorum "Londinensis socium et censorem." It concludes, "Bene vale, mi jucundissime Antoni, et utramque "tibiam feliciter tuearis." A second edition of this Epistle appeared in 1783, but as it seems to have been principally intended for the entertainment of the Author's friends, a copy is become scarce.

In another work of the same Author, published in 1777, "De Jure Colonias inter et Metropolen apud "priscos," the learned Physician is alluded to.

In the history of Brighthelmston (1795) Mr. Lee, after mentioning the exertions of Dr. Russell in attracting the public attention to the virtues of sea water in its application to glandular complaints, adds, "It is however but justice to the memory of Dr. "Relhan, who succeeded Dr. Russell at Brighthelmston, to observe, that by his abilities and exertions, "he considerably advanced a work which had been so "auspiciously begun. His natural history of that "town, published about the year 1760, is a lasting "proof of his ample qualifications even as a successor "to so eminent a physician as Dr. Russell."

The illustration of Brighthelmston as it now is, has been accomplished by abler pens than mine. My object is to preserve and circulate a work which I believe to be extant with very few possessors, and in the hope, that the able treatises on the salubrity of the air, and the water of the town, may be beneficial to those who visit it for the original purpose which first attracted the notice and partiality of the public—the re-establishment of their health! In Dr. Relhan's day, the humblest accommodations in lodgings were scarcely attainable, and these were sought after in the summer months only. Yet, to the salubrity of its air, and the purity of its water, were added the excellent diet of fish, meat, and poultry; and the mackarel and soles, fresh from their native element, the South Down haunch of mutton, and the wheat ear, were luxuries at that time little known to the metropolitan. To the patronage of our Illustrious SOVEREIGN, with the auxiliaries of improved vehicles and roads, may be ascribed the splendour and prosperity which now prevail throughout the place. The once humble habitations have yielded to edifices which may vie with that part of London more immediately the residence of the nobleman and gentleman of fortune; and the numerous safe, yet expeditious modes of conveyance, between the metropolis and this town, have converted the latter into almost a suburb of the great city.

HISTORY

OF

BRIGHTHELMSTON.

A

SHORT HISTORY

OF

BRIGHTHELMSTON

IN 1761.

THE town of Brighthelmston,* in the county of Sussex, is situated on the banks of the sea, at the bottom of a bay of the same name, formed to the east by Beachy-Head, and by Worthing point to the West.

The bay is a bold and deep shore exposed to the open sea: from the banks or cliffs a clean gravel runs to the sea terminating in a hard sand, free from every mixture of ooze, and those offensive beds of mud, so frequently found at the mouths of rivers, and on many shores.

The town is built on a rising hill with a south-east exposition; defended towards the north by hills, whose ascent is easy, and view pleasing; bounded on the west by a fruitful and extensive corn-field, descending gently from the Downs to the banks of the sea, and leading to

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* It appears to have been called Brighton in a terrier of lands, dated in 1660.—Ed.

Shoreham; and on the east by a most beautiful lawn called the Steine, which runs winding up into the country among hills, to the distance of some miles.

The soil here, and over all the south Downs, is a chalk rock covered with earth of various kinds and depths in different places.

The advantages resulting from this kind of soil are many and considerable. Chalky ground has little or no perspiration, and therefore must be extremely healthy. The fertility of it as to grain is indisputable; and is owing to the native bed of chalk, dug up by the farmers in the very field they restore it to the surface of again, for its own and their enrichment. The abundant crops which it produces, aided by this manure, are not so surprising, as the ability of its continuing to do so for upwards of twenty years, from a single act of manuring.* The grass of this soil is of the finest texture, and of the sweetest taste: and, in this particular place, is interspersed, on the summits of the hills, with wild aromatic plants of different sorts; which might be easily increased to the advantage of the proprietors and the public.

To these, perhaps with justice, may be ascribed the remarkably sweet flavour of the mutton of this place; and to the culture of these aromatics we certainly might, and I hope soon shall be indebted for a medicine, used with the greatest success in Wales, Scotland, and Ireland, and much wanted in the neighbourhood of London, I mean goat's milk. The effects which arise from the use of this milk converted into whey, inriched with the aperient, saponaceous powers of these aromatic plants, are well known to the experienced practitioner: and I am persuaded, that, if tried as a preparative for sea bathing, it would be found extremely serviceable.

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* Pliny presumes it will last much longer: "Alterum genus albæ cretæ argentaria est. Petitur ex alto in centenos pedes, actis plerumque puteis, &c. Hâc maxime Britannia utitur. Durat annis LXXX." Hist. lib. xvii. cap. 8.

The ground of this soil does not crack, nor the grass burn so soon as in other soils. This is perhaps partly owing to the reflecting power of the chalk; partly to the declivity of the hills; and yet in wet weather it sooner grows dry, so that you may immediately ride after heavy rains, without the least inconveniency. Hence it follows, that in this soil there can be no marshy, swampy ground, excepting in such places as border on rivers. Now as the nearest river to this town is really distant six miles, and as this is a circumstance peculiar to itself, no other maritime town in England being equally remote from one, I may venture to affirm that the soil here is extremely dry, and that the air of this place must be proportionably pure.

Lastly, in this soil it is remarkable that water for the necessary uses of life is difficult to be acquired, as it lies deep: but, when obtained, it well rewards the laborious searcher, as it is excellent in its kind, and its sources almost inexhaustible.

The country round Brighthelmston is open and free from woods, and finely diversified with hills and valleys. Hence the advantage of exercise may be always enjoyed in fair weather: it is ever cool on the hills, and a shelter may be constantly found in the valleys from excess of wind.

The hills are in some places steep, but everywhere covered with a green sward from the bottom to the top.* On the summit of these the prospect is extensive and varied; towards the sea there is an uninterrupted view from Beachey-head to the Isle of Wight; towards the land, or *weald* side, the view, in the opinion of the great Mr. Ray, is no where to be equalled; and from this very prospect, compared with that of the Isle of Ely, he infers the wisdom of God in the construction of hills.

The Downs here run parallel to the sea; the turf of them is remarkably fine; they are from six to ten miles broad: so that this delightful country cannot be deemed a confined one.

The merit of the situation of this town has within these few years attracted a great resort of the principal gentry of this kingdom, and engaged them in a summer residence here. And there is reason to believe, that in the earliest times it was in the highest estimation. The altars of the Druids, the only surviving remains of the ancient Britons, are no where to be seen in greater number.* And although there are here no traces of temples, no images here existing, yet does not their want in any shape invalidate the supposition of this place's having been an original residence of theirs, as it seems to have been a received principle in all countries where Druidism prevailed, that the confining the Deity within walls, or the representing him in any human figure, were unworthy of his majesty, and unsuitable to his immensity. But the position of these altars, and the local circumstances answering so exactly to their customary choice of places, leave but little room to doubt of their having had a residence here.

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* In the years 1800 and 1801, when wheat was at an unprecedented price, the occupiers of farms on the South Downs converted much of their downland into tillage, from which they acquired abundant crops of corn. The green sward when once ploughed, can never be restored to its former verdure, and although grass seeds have been yearly sown in succession for more than 80 years upon down formerly broken up and converted into arable land, the distinction between these parts and the original down is still clearly perceptible.—Ed.

The nature of the subject will not admit of certainty: the limited information we have concerning the Druids lays us under the necessity of forming probable conjectures; their real ignorance of the use of letters, or their mysterious affectation of it, committing every thing to memory, prevented their leaving proper testimonials behind them; and their cruel attachment to human sacrifices had so irritated the Romans against them, that, contrary to their usual policy in tolerating the religion of the country they invaded, they resolved on the absolute extirpation of them and their superstition, and effected it most completely.

Certain however we are, that they dwelt in retired places, to secure themselves from the troubles of public life; in places where the air was good, and soil healthy, diversified with an agreeable variety of rising and falling grounds; in the neighbourhood of spacious woods of oak, so necessary for their religious observances; and ever near the sea, as that situation answered for the double purpose of supplying them with many conveniences, and the performing of religious compliments to the sea, which they in some cases adored. Nor was this custom of performing sacrificial entertainments on the sea-shore confined to the Druids; for Homer* informs us, that when Nestor treated his subjects the Pylians at a solemn sacrifice, it was performed on the sea-shore, and in honour of Neptune.

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* See the remains of a Druidical altar at Goldstone (Gor or Thor stone) bottom, about a mile to the north-west of the town.—Ed.

Besides, as it is acknowledged that the English Druids were more knowing than those of Gaul, more strict in observing, and more punctual in adhering to their original institutions; and, as in consequence of these excellences, a great resort of scholars came from thence to be instructed by the Druids of Britain; it is probable that they came to this neighbourhood, which was convenient for their landing, and where the Druids had most assuredly a residence.

The attachment of our ancestors to this place may be further illustrated by our taking a view of the efforts they made to preserve it.

Suetonius, relating the invasion of Britain by Vespasian, says, "Tricies cum hoste conflixit; duas validissimas gentes, superque xx oppida, et Insulam Vectem Britanniæ proximam in deditionem redegit." Cap iv.

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* Vide Homer Odyss. lib. iii. lin. 5, 6.

Now, that one of these nations inhabited the Downs of Sussex, seems probable from their vicinity to the Isle of Wight, and in some measure confirmed by the lines and intrenchments still subsisting between Brighthelmston and Lewes, where the principal scene of action must have been, and bearing every Roman mark.

That there was a Roman station in this neighbourhood is admitted by the antiquarians, though its exact situation is not as yet ascertained. The Portus Adurni, placed by the learned Selden at Aldrington, two miles to the west of Brighthelmston, is by the ingenious Tabor presumed to have been at East Bourne, eighteen miles to the east of it: yet there are many local and incidental circumstances belonging to this place, and which are wanting in those towns, that render a conjecture probable as to its having been a Roman station.

The Præpositus of the Exploratores, whose office was to discover the state and motions of the enemy, and who was certainly in this part of Sussex, could be no where more advantageously placed than in the elevated situations of the strong camps at Hollingsbury and White-Hawke, commanding a most extensive view of the whole coast from Beachy-Head to the Isle of Wight. The form of this town is almost a perfect square; the streets are built at right angles to each other, and its situation is to the south-east, the favorite one among the Romans. To these may be added, that an urn has been some time ago dug up in this neighbourhood, containing a thousand silver denarii marked from Antoninus Pius to Philip, during which tract of time Britain was probably a Roman province. And, lastly, the vestiges of a true Roman via running from Shoreham towards Lewes, at a small distance above this town, have been lately discovered by an ingenious gentleman truly conversant in matters of this nature.

The light sometimes obtained in these dark matters from a similitude of sounds in the ancient and modern names of places, is not to be had in assisting the present conjecture. Its ancient one, as far as I can learn, is no way discoverable; and its modern one may be owing either to this town's belonging formerly to, or being countenanced in a particular manner by a Bishop Brighthelm, who, during the Saxon government of the island, lived in this neighbourhood: or perhaps may be deduced from the ships of this town having their helms better ornamented than those of their neighbouring ones.

It is true here are no hypocausts, mosaic pavements, inscriptions, or any other delicate monuments of Roman antiquity,* that might corroborate in a stronger manner this supposition: these, if any such existed here, have been defaced by time, or destroyed by the undiscerning inhabitants of the place.

During the Saxon æra, this town was almost the centre of the kingdom of the South Saxons; and consequently could not be the scene of much action. It submitted to the various revolutions which prevailed at different times, until the Norman conquest.

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* A mosaic pavement has lately been discovered at Lancing, within nine miles west of the town.—Ed.

The Conqueror landed at Hastings, forty miles distant to the east of this town ; so that his troops never came near it. Yet, the fate of England being decided by the bloody engagement at Battel, this town, with many other large possessions in the county, was granted to William de Warren,* who married the Conqueror's daughter : and he soon made it part of the endowment of that rich priory, which he founded at Lewes.

This resigning of the town into the hands of monks was a fatal stroke to its ancient greatness. Too attentive to their own immediate interest, and too regardless of that of their vassals, as soon as they were in possession of it, they laboured, and with success, to obtain an exemption for it from supplying the king with ships, or affording him such other succour, as a large and powerful maritime town ought to have done, on the pretence of its being part of a religious estate.

This immunity, however, deprived them of the privileges which the people of the adjacent towns enjoyed; and was probably the true reason, why this town did not obtain a place among those called Cinque ports. It lies in their neighbourhood, is more ancient, and was always more considerable than most included in that number.

To reduce its consequence still more, the tythes were in this period taken from the incumbent, appropriated to the use of the Priory at Lewes, and have never since been restored; and a Convent of mendicant friars, more burthensome than ten endowed ones of monks, was founded and dedicated to St. Bartholomew.

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* In the history of Lewes and Brighthelmston, (1795), to whose now venerable Editor I offer my thanks for his permission to refer to his work, and in Horsfield's more comprehensive account of the former town, (1824), will be found a complete history of the foundation and fate of this priory.—Ed.

This Friary,* if we may form a conjecture from the remains, must have contained a large number; who were to be supported by the industry, and fed by the labour of the inhabitants of the town.

Struggling under these difficulties, nothing but the Reformation could enable the inhabitants of this place to emerge from their wretchedness. And accordingly we find, that, in the happier days of Queen Elizabeth, their affairs put on a new face. They then applied themselves with vigour to their old employments of fishing, and fitting out vessels for trade; seeking subsistence from their darling element the sea.

Persecution prevailing at this juncture in many parts of Europe, numbers fled to this island as to an asylum, and many settled in this town, bringing with them industry, and an attachment to maritime affairs; or soon learning them here. The number of its inhabitants being thus increased, its trade became proportionably greater: so that in 1579, a record now subsisting says, "There are in the said town of Brighthelmston

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* This Friary became at the Reformation the residence of the Vicar, and was in the year 1790 (after having been occupied by the preceding Vicar for 45 years), pulled down by the then Incumbent, who erected the present Vicarage house on its scite. Mr. Lee considers what Dr. Relham calls a Friary, to have been only a habitation for two or three monks, who officiated at a Chauntry or free Chapel, dedicated to St. Bartholomew, and that a part of the buildings was destroyed in 1513, when the French, under Monsieur Pregent, burned a considerable part of the town.—Lee's Hist. 466—529.—Ed.

“ of fishing-boats four-score in number, and of able “ mariners four hundred in number, with ten thousand “ fishing-nets, besides many other necessaries belonging “ to their mystery.”* And the descendants of many of

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* It is a melancholy reflection to compare the present state of the fishery with its prosperity in 1579, or in more modern periods. Within the recollection of the Editor, there were 60 boats employed in catching mackarel, and in a propitious season, that species of fish has produced in Billingsgate market a sum of £10,000, with which the town was enriched. In the autumn, 20 of these boats were fitted out for the herring voyage, and one boat has been known to land during the season from 20 to 30 lasts of herrings, each last containing 10,000 fish, computing 132 to the 100.

In the mackarel season 1829, (as in that preceding) 20 boats only were employed, and very few fitted out for the herring voyage.

The trawl fishery for soals, brills, skait, &c. continues through the year, but in successful nights their severs are scarcely adequate to the supply of the town. About 40 boats are usually in this employ. Within these two years great quantities of smelts have been caught by the Seine net, which, though smaller, are considered by many as superior in flavour to those which are taken in the river Thames. That the present fishermen are different from their forefathers is obvious to such natives as recollect the industrious habits and prudent manner of living of those from whom they spring. Most of them formerly supported their families without parochial relief, and sustained that respectable rank amid the local authorities of the town, which was bestowed upon their ancestors in the year 1579; when, under the orders of the Lords Commissioners appointed by Queen Elizabeth, two substantial fishermen of the town, and one landsman were to be chosen with the consent of the Constable, the Vicar or Curate, and the chief of the town for Churchwardens; and no money could be distributed for the necessary public charges without the consent of six substantial men of the parish, four of whom should be fishermen and two landsmen.—See Lee's Hist. of Brighthelmston, 1795, page 501, et seq. where the orders of the Lords Commissioners are fully set forth.—Ed.

In 1663, Edward Joy, fisherman, bequeathed to his native town a perpetual annuity of £4, and Thomas Humphrey, fisherman, left to it a yearly rent charge of 40*s.* for ever.—Ed.

Some remain, who are competent in property and character to exercise their ancient privileges, but many, it is to be deplored, are occasional burthens upon the parochial funds, or have exchanged their original occupations for less laborious and dangerous employments. The vices which have increased with the these French, Dutch, and Spanish families still reside here.*

From this record we likewise learn, that the town was fortified to the sea by a flint wall, and that the fort, called the Block-house, had been then lately erected. The east-gate of this wall, in a line with the Block-house, was actually standing last year, and has been since taken down to open a more convenient entrance to a battery lately built.†

These facts seem sufficient to refute an absurd traditional opinion, which has too much prevailed, of this fort's being originally erected in the middle of the town, and that half of the said town has been since that time washed away by the encroachments of the sea. But, abstracted from these proofs, which invalidate the tradition, I should be glad to know, why this fort, calculated to defend the town against attacks by sea, was built in the middle of the town? I am induced

increase of population, may have corrupted many, and great would be the satisfaction to those who remember what they once were, to witness the success of the endeavours, which are making by the moral and religious part of the community, to effect a change in their habits and manners. In the year in which our historian wrote, (1761), a fisherman's club was established under the active patronage of their then Vicar, which flourished for nearly 30 years after its formation. Upon his death, efforts were in vain made to continue its benefits—and as the members died, the funds were divided among their families.—Ed.

Under the fostering patronage of his Majesty, a new Institution of a similar nature has lately been founded upon improved principles—faustus felixque sit!—Ed.

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* The families of Mighell and Whichelo are all that appear to remain as of Spanish origin.—Ed.

† The kindness of a friend has enabled me to supply this work with a view of the town taken from the sea in 1743, when the wall, Block-house, and East-gate were partly standing.—Ed.

to believe, that this opinion owes its birth long since to ignorance, and has of late years been nurtured by envy: the same motives which gave rise to a report, gazetted in the early part of last autumn with great industry, of this town's being then nearly washed away; when it is incontrovertible, that the whole damage sustained consisted in the failure of one groyne, and the destruction of a few yards of earth, washed from under the corner of a house pleasantly, but, perhaps, not prudently placed on the edge of the bank by the sea side. The fears of the public concerning this part of the town, as perishable, are, it is presumed, now removed, by the erection of a new groyne on a plan greatly superior to the last, and not liable to the same accidents. We may therefore soon hope to see buildings continued round the Steine, the most delightful spot in this place.*

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* So incapable were the inhabitants from their poverty of providing groyns for the preservation of their property, that in 1722, by virtue of Letters Patent under the Great Seal, " there was raised by charitable contributions for the then " deplorable sufferers the inhabitants of the town money for building groyns, " bulwarks, and fortifications against the sea, in order to preserve such part of " the said town as was then remaining."

In 1757, other letters patent, or a brief for alms to be collected from house to house, was obtained for the support of groyns. This brief is in the possession of the Editor, and after stating that the collections under the former brief had been appropriated and applied to the safety and preservation of the place, proceeds thus: " And the said money being now expended, the groyns and defence " that have been made are decayed and worn out, and in all probability should " the next winter prove stormy, great part of the said town will be destroyed if " not timely prevented, that the petitioners are not able to support and relieve " themselves in this important and weighty affair being burthened with numerous " poor, their rates for the relief of the poor amounting annually to near 6*s in the* " *the pound* rack or full rent." " That the said petitioners by reason of these " calamities are now become real objects of compassion, that the money immedi" ately wanted to erect new groynes, supporting such as remain, and the other

It appears in this record likewise, that there were appointed at that time twelve of the most substantial inhabitants to assist the constable of the town in the

" necessary fortifications on a moderate computation will amount to £2,250
" which the petitioners were unable to raise."

A venerable inhabitant assures me, that the best house in the town was not at that time rated at more than 40s. per annum.

In 1689 and subsequent years, the neighbouring parishes of Bletchington, Hangleton, Ovingdeane, East Aldrington and Patcham, having no poor of their own, were by order of Sessions united in support of the poor of Brighthelmston, and to enable the inhabitants to protect their property from the inroads of the sea. See Lee's Hist. of the town, p. 482.

The brief then constitutes certain noblemen and gentlemen trustees and receivers of the Charity. (See Appendix.)

In the year 1774, an Act of Parliament was passed for building groynes, for erecting a market, &c. the tolls of which, with a duty upon coals, and an assessment upon houses, &c. have enabled the inhabitants to preserve the town from any serious encroachments by the sea.

In lamenting the degenerated morals of some of the fishermen, we cannot withhold our praise from such as still adhere to the industrious and sober examples of their fathers—and who continue to pursue an employment which is the best and most natural source of wealth and permanent prosperity to a maritime town. The dangers and obstructions which attend their labours are known only to themselves. It not unfrequently happens, that the hopes and property of the fisherman are destroyed early in the mackarel and herring season by the loss of his nets. These extend some a mile and a half, others two miles in length, and are liable to become entangled, or as it is termed puddened by porpoises and dog fish, or cut asunder by large vessels pursuing their course in the dark, and so lost or rendered useless for the remainder of the season. They are often out for 24, occasionally for 48 hours, and more, without catching fish sufficient to remunerate them for their expenses, besides the loss of time. In gales of wind which have compelled ships of large burthen to seek for shelter in harbour, and in tempests which have overwhelmed stout built vessels, these hardy men have rode out the storm in their open boats, watching through the night, and labouring for the preservation of their lives and their barques—wet, and with no shelter except a small cobble or coy in the bow of the boat, where there is scarcely room for a man to lie down! In the severest night, their best sustenance is that of cold meat, with beer, dearly purchased at a public house.

maintaining the peace and good order of it. And it is probable, that Lord Buckhurst, who then possessed the manor, intended to procure a charter for this his favourite town; as the recited regulation appears like a plan for a Corporation, consisting of a Mayor and twelve Aldermen. But, having never perfected his intention, the order wanting a proper foundation was not long obeyed: a circumstance that must give great concern to every well wisher of this town.

To the ancient history of this place I must beg leave to annex the following account, as tending to shew the inviolable loyalty of its inhabitants. King Charles the

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In Nov. 1798, it pleased the Jacobin Government of France to extend its crimes by waging war with the unoffending and unarmed fishermen of this town, 27 of whom were taken prisoners, and conveyed under the usual circumstances of barbarity then so prevalent in that nation [See Report of the Committee of the House of Commons, on the treatment of prisoners of war, 1798] into the interior of the country. The poor fellows were exchanged after three months' detention, and returned in rags and exhaustion to their families. The charity of their fellow townsmen, kindled by a venerable native now living, (a portion of whose wealth was never denied, and is still accessible to the distressed,) supplied the wives and children with additional comforts during the captivity of their relatives. With augmented population, the inclination and means of doing good have increased, and in no case of distress which merits assistance, are the alms of the charitable withheld.

In the late institution formed for the benefit of the fishermen, a partial compensation is afforded to those whose boats and nets are lost or injured, yet it cannot be a matter of surprise, although one of great regret, that the losses and hardships to which these men are exposed, break the spirit of some, and that they should abandon their original employment for other occupations, or sink into those vices which frequent visits to the gin shops and alehouses entail upon them to the utter ruin of themselves and their families.—Ed.

Second, in his flight after the fatal battle of Worcester, attempted making his escape by sea; and being not only disappointed, but nearly betrayed in the west of England, he sought for, and found an asylum at Brighthelmston; from whence he was safely conveyed to France, by one Nicholas Tattersal, in his small bark. At the restoration, the King acknowledged, and rewarded the merit of this service. To the town it is probable he would likewise have extended his bounty, had he not been a prince too dissipated and necessitous: as he often bore testimony to the loyalty of the inhabitants; to many of whom, as well as the captain, he was personally known, and whom no temptation could so far seduce from their allegiance to their Prince, as to engage them to betray him into the hands of his pursuers.

The town at present consists of six principal streets, many lanes, and some spaces surrounded with houses, called by the inhabitants squares. The great plenty of flint stones on the shore, and in the corn-fields near the town, enabled them to build the walls of their houses with that material, when in their most impoverished state; and their present method of ornamenting the windows and doors with the admirable brick which they burn for their own use, has a very pleasing effect. The town improves daily, as the inhabitants, encouraged by the late great resort of company, seem disposed to expend the whole of what they acquire in the erecting of new buildings, or making the old ones convenient. And should the increase of these, in the next seven years, be equal to what it has been in the last, it is probable there will be but few towns in England, that will excel this in commodious buildings.*

Here are two public rooms, the one convenient, the other not only so, but elegant; not excelled perhaps by any public room in England, that of York excepted: and the attention of the proprietor in preparing every thing that may answer for the conveniency and amusement of the company, is extremely meritorious.

For divine service there is a large Church, pleasantly situated on a rising ground above the town; but at a distance that is inconvenient to the old and infirm. The Dissenters, who, of all denominations, amount to but forty families, have a Presbyterian, a Quaker's, and an Anabaptist's meeting-house.

The men of this town are busied almost the whole year in a succeeding variety of fishing; and the women industriously dedicate part of their time, disengaged from domestic cares, to the providing of nets adapted to the various employments of their husbands.

The spring season is spent in dredging for oysters, which are mostly bedded in the Thames and Medway, and afterwards carried to the London market; the mackarel fishery employs them during the months of

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* The recent publications on the present state of the town, will amply establish the prophecy of our historian. How grateful is it to men of science and humanity to see our now more than commodious buildings! our hospital endowed with munificence, and under the superintendence of men of high medical talent and experience! our additional places of public worship under the care of pious and assiduous pastors!—Ed.

May, June, and July; and the fruits of their labour are always sent to London; as Brighthelmston has the advantage of being its nearest fishing sea coast, and as the consumption of the place, and its environs, is very inconsiderable. In the early part of this fishery they frequently take the red mullet; and near the close of it, abundance of lobsters and prawns. August is engaged in the trawl-fishery, when all sorts of flat fish are taken in a net called by that name. In September they fish for whiting with lines; and in November the herring fishery takes place, which is the most considerable and growing fishery of the whole. Those employed in this pursuit show an activity and boldness almost incredible, often venturing out to sea in their little boats in such weather as the largest ships can scarce live in. Part of their acquisition in this way is sent to London, but the greatest share of it is either pickled, or dried and made red. These are mostly sent to foreign markets, making this fishery a national concern.*

That every imaginable encouragement ought to be granted to this fishery, will appear evident from its being really a continual nursery for mariners, as well as fishermen. Boys of twelve years of age have so good an allowance, that even at that time of life they are tempted to enter into this service; and many of them, having previously learned navigation in the free-school of the town, soon become mariners. Some of these, encouraged by high wages, leave this confined service, and engage themselves in the merchants' employ; while others, animated by more aspiring views, voluntarily enlist themselves in the naval service of their king and country.

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* There are three hundred fishermen, eleven vessels, and fifty-seven fishing boats belonging to this place.

The Lords of the Admiralty, well apprized of the national advantages accruing from this fishery, have been pleased to grant their protection to it in all its branches: a protection that has not been infringed in a single instance during the present war. But should their lordships, at any juncture, withdraw their well judged indulgence from this industrious set of fishermen, we shall soon find, that from the decay of boats, nets, and other materials, together with the unavoidable poverty of the proprietors, this branch of trade will inevitably perish, without the most distant hope of our ever seeing it revive again.

From this account of the fishery of this town, the reader will be satisfied, that it must supply a constant and good article in provision to the inhabitants. And although there are complaints made of the inconveniences experienced in the want of a regular and daily market, yet as few who come here to use the waters can long want an appetite, and as fish of different sorts, excellent mutton, beef, and veal tolerably good, with all kinds of fowl, may be had in plenty twice or thrice a week, the rarities of a London market may be resigned unregretted for a few months.*

In examining the ancient and modern descriptions of the Baiæ in Campania, where the Romans of wealth and quality, during the greatness of that empire, retired for the sake of health and pleasure, when public exigencies did not require their attendance at Rome, and comparing them with those of Brighthelmston, I can perceive a striking resemblance; and I am persuaded, that every literary person who will impartially consider this matter on the spot, will concur with me in opinion, giving, in some measure, the preference to our own Baiæ, as exempt from the inconvenient steams of hot sulphureous baths, and the dangerous vicinity of Mount Vesuvius. And I have no doubt but it will be equally frequented, when the healthful advantages of its situation shall be sufficiently made known.

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* A new and more commodious market is now building under the late Town Act, passed in 1826—Ed.

OF THE

AIR OF BRIGHTHELMSTON.

The use and necessity of air, as an instrument of life, cannot but be obvious to every one who breathes; but the various changes of this fluid in its sensible qualities of heat, cold, greater or lesser gravity, humidity, dryness, &c. with its impregnations arising from vegetable, animal, and mineral substances, are too often the fertile sources of infirmity to man. And although the combination of these causes is often so remote and mysterious, as to escape the observation of the inattentive; and so inexplicable, as to reduce the ærologist to the necessity of wondering at the effects, without presuming to assign their cause; yet as there is no part of this earth totally exempt from these changes, nor any human body unaffected by them, it becomes a duty highly incumbent on every valetudinarian to make choice of a residence, where the air may be presumed from theory, or proved by experience, to be well suited to the circumstances of his health; where the changes in its sensible qualities are neither frequent nor excessive; and where the impregnating vapours of the place and surrounding soil may be, if not a means of medicating the air for his constitution, at least not offensive to it.

To illustrate the almost singular healthfulness of the town of Brighthelmston, by observations deduced from the changes of the air, and its impregnations, is not so completely in my power as I could wish. The shortness of my stay there, and the want of a particular attention in the inhabitants to a detail of these matters, prevent my treating of it with desirable precision. Yet as the changes which happened during the months of July, August, and September last may lay a foundation for the elucidating this point; and as the insufficiency of that time may receive assistant weight from the testimonies of the oldest, the most observing, and the most intelligent people of this town, I shall not hesitate laying before the public their observations joined with mine; from whence will appear, what the general state of the air is, and must be in this town; how far, and in what manner, the impregnating vapours of the soil and sea can affect it; and, lastly, I shall confirm the assertion in favour of the healthfulness of this town, by an indisputable proof arising from the registry of baptisms and burials, compared with the number of inhabitants, as ascertained by the public records of the place.

In examining the changes in the sensible qualities of the air, and the effects of them on the human body, I do not purpose entering into a minute detail of them; this has been already abundantly done by the learned Arbuthnot, Wainright, Hales, &c. to these therefore I must beg leave to refer such as are desirous of seeing these matters treated in their full extent: I shall only, in a cursory manner, take notice of such changes as demand our attention, by affecting the body of the valetudinarian very considerably in this varying climate.

The advantage we derive from our situation, as islanders, is in no circumstance relative to health more conspicuous, than in the pleasing temperature of seasons which we enjoy. The changes of heat and cold, it is true, are often sudden and unforeseen, but never excessive. And although the inland parts of this kingdom may more nearly resemble the continent in the degrees, and duration of heat and cold, yet such as are situated near the sea, are constantly refreshed in summer by a temperating breeze, and have, in winter, a speedy period put to their frost and snow by a warm sea wind.

This is remarkably verified at Brighthelmston; in the summer months a sea breeze prevails, which rises and dies away with the sun, with this observable in it, that the warmer the day is, the more cooling and fresh is the breeze; so that the almost suffocating heats which sometimes happen in the summer in this island, and which are intolerable even to the natives of Jamaica, are never felt here. Of the grateful enjoyment of a cooling sea breeze the ancient poets we find had so pleasing an idea, that they celebrated it as a principal ingredient in the happiness of the blessed in their elysium.*

The same temperature prevails in winter, with respect to frost and snow; the former happens sufficiently often to add to the health of the inhabitants; it is sharp while it lasts, but its duration is short. The latter frequently falls during the winter season, but seldom continues on the ground above a day or two; the warmth from the sea, and the south west winds which prevail, soon dissolve it. The effects, therefore, produced here either by heat or cold, are too transitory and too immaterial to be pernicious.

Far different may those be which arise from an increased or lessened gravity. For as experiment shows, that the surface of a man of a middling stature, in a common atmosphere, is pressed by a weight of air equal to twelve tun, and that the same surface sustains the additional weight of another tun, when the mercury rises in a well constructed barometer to its usually highest point, we may be surprized that the most athletic bodies do not attend to that difference, but we shall cease to wonder at the valetudinary feeling and foretelling the impending change when sudden and excessive.

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* Vide Homer. Odyss. lib. iv. lin. 567, 568. Pindar. Olymp. secund.

The counterpoise between the external air and that confined in the body being soon restored, either by the admission of new air into the frame, or the escape of that confined, the change of gravity is suffered without any inconveniency by the robust. But, in infirm habits, the increased gravity of the air must affect the weak fibre, and the feeble lungs; and its diminished weight must produce the same symptoms, that the exsuction of so much air does in the air-pump, when an animal is confined therein. Hence we evidently see, why very elevated situations, as well as those that are very low and sunk, must be extremely unhealthy; in the former case the atmosphere is not sufficiently weighty to expand the lungs, and condense the blood; in the other it is too heavy for the tender structure of that organ, and brings on inflammations, hæmoptoes, &c. and we likewise see, why valetudinarians should fix their residence where the variations in the atmospherical gravity are as inconsiderable as possible.

Now the gravity of the atmosphere depending on the quantity of ponderous matter sustained in the air, or the accumulation of air from contrary currents tending to the same spot, it will appear, upon the strictest examination, that the air of Brighthelmston must be lighter, more uniform, and better adapted to valetudinary habits, than that of most other places in this kingdom. For the quantity of solid matter with which the air of this town can be impregnated, must be very inconsiderable: it is defended by hills to the northward, which intercept the land breezes, and prevent their bringing any quantity of matter with them when they blow, which is but seldom: there is no high road near it, and those which lead to it are on turf; the exhaled matter from the soil, which is of a chalky nature, must be inconsiderable ; and the south-east and south-west winds which blow from the sea, and which, by the diaries of the custom-house officers, appear to prevail at least during three fourths of the whole year, must be assistant in blowing off any accession of solid matter that may arise from the town, or be supplied by a land breeze.

As to contrary winds accumulating air, so as to occasion an increased atmospherical gravity, I must observe, that there is not a single circumstance in this neighbourhood favouring the probability of such a supposition ; and that, upon comparing the diaries of different officers on that coast, it appears, that the winds blow almost uniformly; the same constantly prevailing, within a point or less, in different places at the same time along this shore.

During the months of July, August, and September last, the mercury in a well constructed barometer, whose scale was divided first into inches, and each inch sub-divided into a hundred parts, never varied but between 29, 50, and 29 inches, 80 at Brighthelmston: whereas, in London, by the best public observations it appears, that the medium height of the mercury for one fifteen days in that time was 30 inches, 6, and in another fifteen days 29 inches, 39; so that the medium variations were more considerable in London, than the variations of any part of the time at Brighthelmston; and the atmosphere gravitated much more in London than it did at Brighthelmston.

Now as it is observed, that near the line, where the winds blow uniformly, the alterations in the baroscope are proportionably small, it is probable, that the inconsiderable variation which appeared in the gravity of the air during my observations, ought to be ascribed to the almost settled south-west wind which prevailed in those months.

But as the too sudden changes in the gravity of the air principally affect and distress such as have weak nerves and feeble lungs, and as the inhabitants of this town are remarkably robust, and free from every pulmonic difficulty, and as the consumptive and asthmatic by repairing to this place find considerable relief from the excellency of an atmosphere that varies gradually, united with the medicated vapour of sea-water; as these, I say, are unquestionable facts, they anticipate every inference that I could mean to draw from the above theory and observations in favour of the healthiness of this situation.

The practice of sending persons labouring under pulmonic complaints to similar situations is by no means a recent one. For this purpose we find Galen making use of the stabiæ, situated between Naples and Surrentum on the sea-shore: defended from easterly and northerly winds; happily exposed to the south, and the healthful influence of sea vapour. And to this situation, and the use of milk saturated with the juice of healing plants which grew abundantly in that soil, and may be made to do so in ours, he attributed his success in the cure of these disorders.

The effects produced by the humidity and dryness of the air on the human body, by being more obvious, are generally more attended to by persons of infirm habits, than those which arise from a greater or less gravity. The manifest relaxation of our whole frame, and the dispiriting symptoms that every valetudinary person feels within himself, are the constant attendants on wet weather: while the braced fibre, the ability and aptitude for exercise, the happy disposition of body and mind to give and receive every social pleasure, are the natural effects of dry weather; and plead strongly in favour of that situation which supplies us with these advantages.

To assist us, therefore, in this choice, we should consider that the quantity of vapour raised in any place depends principally on the superficial extent of water in the place, or its neighbourhood; or the number of trees growing there: the heat of the sun, and the force of the winds, as evaporating causes, being supposed to be nearly equal in all parts of this island.

That air must be charged with vapour in a country where there is a large expanse of water, appears clearly from the following calculation of Dr. Halley, founded on experiment: he says, that six ounces of water will be evaporated in the space of twenty-four hours, from so small a surface as a circle of eight inches diameter, by a heat only equal to that of our warmest summer: and estimating the summer day at only twelve hours, as the heat of the sun at first rising is insufficient to warm the water for evaporation, and too weak to sustain what has been just raised before its setting, he presumes, that, by the mere force of the sun, abstracted from what may be raised by winds, every four feet square of water will in that time yield a gallon of vapour.

Now, if this calculation be but nearly exact, which I am persuaded is the case, we cannot be surprised, that, in countries where there are large collections of water, the air should be proportionably loaded with aqueous particles; and from the corruptible nature of the contents of stagnant water, we may be, in some sense, enabled to account for the great insalubrity of those places where it prevails.

So likewise where there are large tracts of ground covered with trees, the atmosphere must receive a considerable accession of aqueous particles from them: the draught of moisture by trees from the earth, and their perspirable nature, prove this demonstratively. Dr. Bryan Robinson, whose singular accuracy in physical experiments is well known, observed, that in a plant of mint weighing seven grains, whose root was immersed in a glass filled with water, its growth, that is, its increase of weight, was in eight days equal to two grains, but its perspiration in the same time equal to ninety, that being the consumption of the water above the increase of the plant. And Dr. Woodward, in his experiments on vegetation, affirms, that in the most thriving plants the waste of the water is to the growth of the plant as seven hundred to one.

Without examining these experiments, so widely differing as to the quantity of perspired matter, they will, I hope, be allowed a sufficient foundation for me to infer from them, that the perspiring steams which issue from the leaves of trees are great in quantity; and observation will prove this assertion, that they are exceedingly unhealthy, since many woody countries have been made remarkably salubrious by the total destruction of their trees.

To demonstrate that the town and neighbourhood of Brighthelmston are totally free from the vapours of running water, the more impure ones of stagnant, and the perhaps equally unhealthy ones issuing from trees, it is only necessary to observe, that this town lies six miles distant from the nearest river; that there is no stagnant water near it; and that the want of shelter by trees is the general complaint of those who consider this circumstance, as a conveniency for cover and perspective, and not as a matter greatly contributing to health.

The air of this town is notwithstanding charged with aqueous particles: its proximity to the sea supplies them by a natural evaporation. This vapour, however, must be infinitely purer than that arising from stagnant, or even running water; it is impregnated with a saline quality that medicates it for many purposes most advantageously; it is raised from a body extremely pure, and can contract no foulness in its passage; so that the air of the place, being blended with this vapour, must happily answer every purpose of life.

That sea spray may be, and is frequently carried to a considerable distance from the shore, is an assertion easily proved to such as will appeal to matters of fact: for the leaves of trees and vegetables so situated, when applied to the tongue, evince the truth of it. And that this spray may be suspended in the atmosphere is extremely probable; for, although the specific gravity of sea water be considerably greater than that of common, yet is it less than that of the solid particles of matter sustained in the air, and the particles of spray being agitated so as to be most minutely divided, it is evident they may, by mixing with the atmosphere, be suspended in it, and consequently make sea air a medicated one of the greatest efficacy.

That this quantity of sea vapour is not so productive of large or frequent rains, as from the extent of surface of the adjoining sea might be presumed, seems confirmed by the custom-house diaries. For I find, that in the years 1756, 1757, 1758, 1759,* the number of rainy days, communibus annis, amounted to but twenty-five in each year; so that the quantity of exhaled vapour, which must be considerable, exclusive of the remarkably small portion of it which is deposited in the form of dew, is either raised too high in the atmosphere to fall in rain, or is carried by the fresh gales which prevail to some distant place.

Scorbutic complaints so prevalent among seafaring men, and so generally ascribed to the sea vapour in which they reside, as a principal cause, may be urged, and with some appearance of reason, against the truth of this doctrine, tending to establish the great healthfulness of sea air. But the variety of avowed causes concurring to produce this disorder requires not the sanction of a specious reason, so plainly and so daily contradicted by the great longevity of persons residing near the sea shore, living in a constant sea vapour, ever paddling in sea-water, yet perfectly exempt from every scorbutic symptom. When the scurvy does appear among a people so situated, it is owing to the lowness and wetness of the land, their living on fish salted and dried, and their drinking of bad water.

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* The account of 1760 being not kept with equal regularity, I could not obtain it to include it in this estimate.

Brighthelmston, thus free from the insalutary vapour of stagnant water, distant from the noxious steams of perspiring trees, and every other cause aiding to produce a damp, putrid atmosphere, seldom sees its inhabitants labouring under those disorders which arise from a relaxed fibre and a languid circulation. Yet from the vicinity of the sea, and the abundant, but salutary, vapour it affords, it is as certain that the complaints which arise from a too rigid and tense fibre are equally unknown. Hence neither dropsical, nor chlorotic complaints, pleurisies, nor quincies, nor any other inflammatory ones prevail here.

Hippocrates, treating of a similar situation, says: "Cities exposed to the rising sun are likely to be more "healthy than such as lie to the north: for the heat "and cold are more moderate, and the waters benefited "by the influence of the rising sun must be clear, of a "good smell, soft and pleasant. For the temperature "of the season making the situation of such a city "enjoy an almost perpetual spring, the diseases are

" fewer, and less violent; and the women, besides being
" very fruitful, have easy deliveries." And in another place he says, "Pleurisies, peripneumonies, ardent fevers,
" and such diseases as are called acute, are very rare
" in such a situation."

But, the endemial or popular disorders of temperate people being the product of the air and their diet, the best proof of the healthfulness of the air of any place is deduced from the customary longevity of the inhabitants, and the rate of their bills of mortality.

By the poor-rate-book of this parish it is manifest, that there are 400 families resident in Brighthelmston. Each of these, at a reasonable calculation, may be supposed to contain five souls in it;* and consequently the number of inhabitants in this town, exclusive of those supported in the work-house, who, at a medium, amount to thirty-five, may be estimated at two thousand.†

It appears by the registry of baptisms and burials here, regularly kept by the truly learned and diligent Clergyman of the established Church, that, in seven years, beginning with 1753, and including 1759, the number of baptisms was 388, and that of burials 227;

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* The common calculation of souls in the villages of England, is as six in a family, and therefore my estimate must appear very moderate.

† Population in 1761 about 2000

Population in	1761	about 2000
	1786	3600
	1794	5600
	1811	12000
	1821	25000
	1829	40000—Ed.

so that the baptisms were annually, at a medium, 55$\frac{3}{7}$, and the burials 32$\frac{3}{7}$. Thus the births were to the deaths, rejecting the fraction in each case, nearly as 5 to 3.

But in this calculation it must be observed, that the deaths of the dissenters are included, as almost all of them have the burial service performed according to the rites of the Established Church, and their deaths then entered in the registry; but their baptisms are not in the account taken from the registry of that Church: nor can they be ascertained, as that of the Presbyterians, which is the principal sect, including at least 160 souls, has not been regularly kept since the year 1745, the predecessor to the present pastor having been very remiss in this part of his duty. But, as the followers of the dissenting teachers are nearly a tenth of the whole inhabitants, I may be allowed to add to the number of baptisms thirty-five for the seven years; which is five annually, and nearly a tenth; and makes the whole of the baptisms 423 to 228 burials. By this the baptisms are annually to the deaths as 60 to 32, which is nearly two births to one death.*

Now the baptisms of the city of London being, by the bills of mortality, to the deaths, from the year 1728 to 1757, both inclusive, amounting to thirty years, as

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* In the 7 years beginning with 1753 and including 1759, Dr. Relhan states the average of baptisms to be yearly 60, burials 32.

In 1826 the baptisms were 1079, burials 548; so that during a period of above 70 years, the same increase of births to burials seems to have continued. Since 1826, no correct statement of burials can be ascertained from the parish register, a number of interments having taken place in the ground of a dissenting place of worship appropriated to that purpose.—Ed.

15606 births to 24637 deaths, at a medium, annually, or not quite as 2 to 3; and the births in the villages in England being to the deaths, in a general computation, as 1 $\frac{7}{100}$ to 1, or nearly equal; * and it being universally allowed, that the prolific power in every set of inhabitants is equal, and proportionate to their respective healths, it follows, that, as the baptisms in Brighthelmston are nearly double the deaths, it must not only be more healthful than London, but more so than the other villages in England, as far as we know of them from the bills of mortality yet published.

But the comparative deaths of this place with those of London show its healthiness in a still stronger light; for, as no more than thirty-two appear by the registry of burials to die, at a medium, annually, out of two thousand inhabitants, then are the deaths to the mass as 1 to 62½. But by Graunt's and Sir William Petty's calculations it appears, that in London there is annually a death in every thirty-two persons, which is nearly as two to one in favour of Brighthelmston. And by later calculations it appears, that the births in London are lessened in proportion to the deaths, though the deaths do not appear to be decreased respectively to the mass of the inhabitants.

During the months of June, July, August, and September last, the deaths of the inhabitants of this town were but six. And, among the strangers resident there for that time, who may, with their children and servants, be estimated at four hundred at least, there was not a single death, notwithstanding there were many

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* Vid. Phil. Trans.

of them in a very tottering state of health at their arrival.

To reason upon a fact so demonstrative of the healthfulness of this place, must be unnecessary. It is too interesting not to be attended to, and I hope too clear to admit of a doubt.

OF

WATER IN GENERAL.

The right, which water has obtained from antiquity, of being numbered among the elements primarily constituting all bodies, seems to point out the opinion of its first examiners, as to its general use; and the concurring testimony of the moderns in favour of its universal power, illustrated and confirmed by experiments, justifies that opinion. By it, we are now convinced, the animal lives, the vegetable grows, and that the mineral kingdom acknowledges its creative and decomposing power.

Persuaded of this active influence, the great Hippocrates advises every physician to examine with attention the nature of the waters where he practices, as a means of enabling him to exercise the duties of his profession with the greatest success.

If water be considered merely as the common beverage of man, or the foundation of it, and therefore the diluter of his juices; if as a liquid serving the culinary purposes of life, and consequently the great vehicle of his nutriment; there can be no doubt of its being a duty incumbent on the physician to examine it: but if water be viewed in the light of a medicated liquor, of a medicine provided for him by the hand of providence, and capable of being either exceedingly useful or injurious, as it is judiciously or otherwise applied, then does the neglect of such an examination become an unpardonable omission.

To enable such readers as are unacquainted with researches of this kind to judge accurately of the waters I mean to treat of, it might be necessary to premise a general history of water: but as this part of hydrochymy has had every possible light thrown on it by Dr. Lucas in his Essay on Waters, and Dr. Rutty in his methodical Synopsis of Mineral Waters, I must refer the curious to those works, and shall only observe in general, that water, considered in an abstracted light, is presumed to possess an elementary and unmixed purity; that it recedes from this in proportion to the quantity of adventitious matter with which it becomes impregnated in its various circulations. That rain and snow water approach the nearest to the condition of elementary water; and vary only among themselves, as they are charged in their fall, with matter floating in the atmosphere: hence the purest are collected at a distance from large cities, and in seasons when the air is least replete with putrid exhalations and vapours. That spring, well, river, and lake water differ in purity in proportion to the quantity of contents dissolved or taken up by them in their currencies, and the varying corruptibility of those contents. That spring and river water are generally preferable to well and lake water, as the putrefaction of their contents is prevented by agitation, ventilation, &c. That well water, if not frequently used, must, in every respect, be nearly as impure as lake, stagnating water; but, by constant drawing, it may be preserved equal to spring, and preferable to river water in point of purity. That the familiar methods of trying common water may be sufficient to determine mankind in the election of it, for the ordinary purposes of life; therefore when it is pellucid, insipid, inodorous, and light; when it boils quickly, freezes soon, and incorporates with soap, the water is judged to be good, and answers for every domestic use: but the physician must aim at somewhat more, and by the decomposition of it, endeavour to investigate the true nature of its contents; particularly when, as a medicated water, it becomes the object of consideration.

I would not from hence be thought to insinuate, that the analysis of waters is an unerring guide to the true use of them. I consider it as an assistant only to experience; and I humbly apprehend that, from the discovery of the exact nature of the contents in any medicated water, new lights may arise to the prescriber; hence the imperfect solution of some parts may be completed, the noxious redundancy of others separated, while the defects of proportion, in parts necessary to the attainment of particular views, may be remedied by the addition of congenial medicines.

OF THE

WELL WATER

OF

BRIGHTHELMSTON.

This town is supplied with water for the ordinary purposes of life, from a variety of wells dispersed through the town at proper distances. The greatest part of them which are near the shore suffer in limpidity and taste at the flowing of every tide. The water most esteemed by the inhabitants is drawn from a well in the middle of North-street, and that preferred by the company is obtained at the Castle tavern.

The water of each is extremely limpid when examined at its respective well, and preserves its clearness when carried to a distance in bottles well corked, without the least deposition : they have no smell, and are insipid : when weighed hydrostatically, they prove of equal weight, requiring but the addition of two grains to bring the bubble to the equilibrium it had in distilled water. They evaporate very quickly, and from hence I infer they would freeze soon. They will not incorporate with soap when cold, but when boiled will mix with it so as to wash.

When tried with the infusion of astringent vegetable substances, they show no change.

With the syrup of violets, the infusion of campeachy-wood, and cochineal, no observable change appeared.

With alcalious salts, they each contract a similar milkiness without effervescence.

With the mineral acids weak and strong, there appeared no change in their colour, no intestine motion, excepting that when the strong spirit of vitriol was added in the proportion of three drops to an ounce, and the mixture agitated, a few small globules of air arose, detached themselves from the bottom of the glass, and escaped from the surface.

With the solution of silver in spirit of nitre, in the proportion of three drops to an ounce of the water, they each became milky, a deep pearl colour soon displaced the milkiness, and in a larger space of time they grew of a purple colour. The water brought from the pump at the Castle tavern was of a brighter colour, and deposed the whole tinging matter in a sediment; but that of the well in North-street appeared muddy, with a small portion of a brown matter mixed with the purple, and did not let fall entirely its colouring substance.

To ascertain the nature of their contents, and to enable me to account for this difference of colour in the last experiment, I evaporated with a gentle sand heat a pint of each water in a weighed vessel. The water from the Castle tavern yielded an increase of weight to the vessel of four grains, arising mostly from a residuum of clean, whitish earth. Part of this attracted the moisture of the air, and increased the weight near half a grain in the space of twenty four hours. The rest proved to be a mere earth; for, having washed it in a small quantity of distilled water, it neither injured the colour, nor added taste to it, and I recovered near seven eighths of it again in the filtrating paper. The deliquescent part, when applied to the tongue, seemed to have a pungent power as if containing salt; but the earth received after filtration shows its quantity must have been very inconsiderable, though no allowance were to be made for loss in the operation.

The pint of well water yielded, with the same precautions, an earth tinged with a yellowish colour, weighing nearly five grains. This residuum deliquesced with an increase of weight of near half a grain; when dissolved in distilled water, it coloured it a little, without varying its taste, and left the same proportion of earth as in the former experiment.

This residuum, when calcined, proved to be a common lime, acquiring an acrid taste, dissolving partly in water, and impregnating it with the usual qualities of that substance: and it is probable, from the nature of the adjacent soil, that this earth was originally chalk.

From the recited experiments and evaporation it appears, that these waters are nearly alike: that they contain a very small quantity of earth in their composition: that this earth appears perfectly similar in both, exclusive of its colour: that the alcalescent earth, probably of the nature of the mater salis, does not exceed an eighth of the solid contents. And I am induced to believe, that the difference of colours in the residuums arises from accidental impurities which fall into the uncovered well exposed in the street, and from which the pump is perfectly secure.

From experience it appears, that these waters answer every domestic purpose of life extremely well; and as the qualities of springs of any place have been, from the time of Hippocrates to this day, looked on as a mark of those of the air; the sweetness and goodness of this water may, with propriety, be esteemed a corroborating proof of the healthfulness of the air of this town.

OF THE SEA WATER OF BRIGHTHELMSTON.

As it is my intention, in the examination of the salt water of this place, to show the contents of it and their proportions, without attending to its efficacy either as an internal or external medicine, that being amply done by the late Dr. Russel, I must previously observe, that the different proportions of salt dissolved in sea water, depend upon the proximity of the sea to the equator, and the quantity of fresh water supplied by neighbouring rivers, shore springs, and large and constant rains.

That sea water must be more richly stocked with particles of salt under the equator, is evident from the known evaporation of water that prevails where the heat of the sun is extreme. If Dr. Halley's calculation of 5280 millions of tons being daily evaporated from the surface of the Mediterranean sea by the sun only, be to be depended upon, and that further south, where the evaporating force must be stronger, a greater quantity of water be raised, we shall easily believe, that sea water there must have a greater proportion of salt than where such an evaporation does not prevail.

To this cause of strong impregnation is added a second, deduced from a known experiment of warm water dissolving a greater quantity of salt than cold can do. But as sea water under the line is not observed to contain even a sixth of salt to its water, and as some cold natural springs are known to be impregnated with a third, it appears to be at least unneccessary, to have recourse to this additional cause of warmth, to shew that sea water under the line must be more charged with salt.

But, if sea water, from the evaporating force of heat, be more strongly impregnated with salt, that is, its quantity of simple water lessened to its proportion of salt, it will follow, that where this evaporation does not take place, as in colder climates, or where considerable accessions of simple water, either from rivers, springs, or rain mix with the sea, its salt must be more diluted, and its proportion disminished to that of the water*.

By experiments made on sea water taken at different parts of this globe it appears, that the proportions of the impregnating salt are in different seas from near a sixth to a thirtieth part: and these proportions vary agreeable to the preceding observations.

But as no remarkable difference in impregnation can arise in the sea water surrounding this island, from a greater or less vicinity to the sun, I shall only observe, that the situation of Brighthelmston is the most southerly in England, a few places excepted; and therefore as likely to receive any advantage from the evaporating power of the sun as any place in this island, where sea water is used either for bathing or drinking. That it is six miles distant from the river nearest to it on one side, and nine from that on the other. That its shore springs are not numerous, and the water that issues from them is inconsiderable. That the sea water is extremely limpid, without smell, and as pleasing to the taste, as salt water can be, that is so richly stocked with the particles of salt.

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* This theory is not only justified by the experiment of evaporation, &c. but by the nicer palates. A remarkable instance of which I once saw in a patient at Mercer's hospital in Dublin, during my care of that house. The situation of that city to the sea is such, that salt water may be had at a less distance than two miles; but being persuaded, that by the mixture of the fresh water of the river Liffey, which runs through the city, sea water so near to it might be too much diluted by it, I ordered that all sea water wanted for the service of the house, should be sent for to the distance of four miles; and the only test we had of this direction being punctually complied with, was the taste of the patient mentioned; I was present at his distinguishing them two or three times; and the apothecary, whose veracity I had no reason to doubt of, assured me he had never failed in discovering, when theyhad attempted to impose on him water brought from the nearer place.

To ascertain the real quantities of salt, &c. contained in this water, I evaporated a pint of it with a gentle sand heat in a weighed vessel, and had five drachms and six and twenty grains of residuum*. Exposed to the open air it deliquesced partly, and increased in weight seven grains in the space of twelve hours. I dissolved the whole in distilled water, filtrated it through a weighed coffin, and had six grains of a pale pure earth. This water I evaporated with a gentle heat, and had five drachms and almost twenty grains. Part of this again deliquesced, and the salt was extremely pure.

I repeated these experiments at various times, on water taken at spring and neap tides, at the flux and ebb of the sea, and could never observe any difference in point of contents, but such as ought really to be ascribed to the difference of heat made use of in the evaporation.

Hence it appears, that in summer weather tolerably dry, there are, in every pint of sea water here, at least five drachms and fifteen grains of pure defecated salt, about five of bittern, or a decomposed earth attracting humidity from the air, and six grains of a white calcarious earth. That this proportion of clean contents being nearly a twenty-third of the whole, is as great, or perhaps greater, than is to be found in the sea water of any other port in England; and must be owing to its peculiar distance from rivers, it being further from such, I apprehend, than any one sea-port town in England. And that the existence of bitumen, nitre, &c. in sea water, pure and unadulterated, is fairly contradicted by this evaporation and separation.

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* For the sake of persons unacquainted with medical weights, I must observe, that this quantity is near three quarters of an ounce, wanting but 34 grains to make it such; which is but very little more than the sixteenth of an ounce.

Under these inviting circumstances it is necessary only to add, that the bay here is open and exposed to the sea; free from ooze of its own producing, and not subject to any filth brought from neighbouring sands or shores; and that the beach is a clean gravel and sand, with a gradual descent.

OF THE
MINERAL SPRING
AT
BRIGHTHELMSTON.

Some years have now elapsed since a mineral spring has been accidentally discovered to the north-west of the town of Brighthelmston, and at the distance of half a mile. The peasants who first made the discovery, though unacquainted with the virtues of its water, and even displeased with the taste of it, resolved to preserve it for the use of themselves, and the sheep which feed around it: no spring besides appearing upon the surface in all these downs, no pool of even stagnant water.

This spring issues from the declining part of a little hill covered with furze; the soil around is loamy, with various strata of bole, ochre, and umbre.

In some time this spring was observed to depose an ochrous sediment in its overflowings into a bottom, where Nature has provided a flat for a kind of reservoir to it. The colour of this sediment having engaged many persons to speak of the water, as containing a mineral in it, a gentleman now living there tried it for a complaint in his stomach, for the relief of which he was then preparing to go to a foreign water, and was effectually restored by it to his former health. His case being well known, and his veracity unquestionable, others resorted to it for various complaints; some with, and some without success: many more would have used it, had not the uninviting manner in which the spring was kept disgusted them. At length the proprietor, encouraged by many applications, inclosed the spring with a brick wall, sunk an iron pot, pierced with two holes for the water to flow in at, and covered it with a wooden top that locks down, to secure it from the injuries of dirt, &c. leaving a free passage for the overflowing water to empty itself into the reservoir.

Under this improvement, as its virtues were not sufficiently known, it was but little used until last summer; then many persons drank it on the spot, and some few used it at home, hearing that several familiar experiments had proved it to be of the class of waters improperly styled chalybeats; and presuming from the taste of it, that it differed little from that of Tunbridge.

The histories of cures which were related to me, as performed by it, and the evident inconveniences which

I saw and heard of, attending the injudicious use of it, engaged me in the following series of observations and experiments, calculated to ascertain its use, by unravelling the true nature of its composition.

This water, examined in a glass at the spring-head, appears in colour as if two or three drops of milk had been instilled into it: and this whitish cast varies according to the preceding weather, being greatest after falls of rain, unless extraordinary; and most pellucid after dry weather.

When tasted it is soft, not unpleasingly martial, and temperate in point of heat.

It has the smell that is always perceptible in ferruginous waters, but heavy when compared with the brisker odour of Pyrmont, or Spa.

The particles of this water are apparently at rest when taken up in a broad-mouthed vessel, and continue so until the water warms to nearly the heat of the atmosphere: then a few globules of air begin to detach themselves, adhering to the sides of the glass: soon after some rise to the surface, the greatest number still remaining at the bottom. In this time the milky colour changes to a yellowish cast, and in about twelve hours a light copper coloured scum or film begins to swim on the surface: a few particles of a light brown powder appear on the sides of the glass, and in twenty-four hours a sediment of a deeper dye begins to be deposed at the bottom. In the space of forty-eight hours, the entire separation of matter in this natural way is completed, the globules of air still continuing, though in a decreased quantity.

This scum is only visible on the surface of small quantities of the water thus kept and exposed, or on those lodged in the tracks made by horses round the reservoir, into which the spring empties itself; on the large surface of the water no such film is discernible. By introducing a piece of white paper under it, I had frequent opportunities of examining it; when wet, it appeared like the lighter and brighter part of the impregnating ochre, when dried, it shewed very bright to the naked eye, like particles of dissolved copper adhering to the paper: with the microscope it looked like a rich piece of gold embroidery, interspersed with luminous bodies, resembling lumps of solid gold.*

This water, having thus deposed part of its contents, I passed through a filtrating paper previously weighed, and when dried again, there remained in it an ochrous matter, which neither fermented with acids nor alcalis; that, in an ignited crucible, bured with a small scintillation, and a kind of crackling scarcely audible; and that when calcined did not obey the magnetic force.

The exact quantity of this sediment is not ascertainable, as it varies with the wetness and dryness of the weather: yet, from a number of trials made in summer, I affirm, that a pint of the water in that season, yields, at a medium, a grain and a half. And to the greater or smaller quantity of this sediment, may be ascribed the increased or diminished milkiness in the colour of the water; as the proportion of the other contents varies not after rain, at which time this is increased.

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* This scum may be seen on the surface of Tunbridge water, exposed in the same manner, and yields with the microscope the same appearance.

The water thus stripped of its heavy ochre, still retains what is called a ferruginous taste; and shows, by every experiment, that it is yet impregnated with a martial earth.

Weighed at the spring hydrostatically, it is nearly of the same weight of distilled water, the glass bubble requiring but half a grain to bring it to an equilibrium in this water more than it had in the distilled. At a distance from the spring it required near a grain and a half: such was the loss that its lighter parts sustained by carriage, though in bottles well corked. The difference in its weight after rain, or in dry weather, is very immaterial when the heat of the atmosphere is nearly equal; though to the eye it appears, and by experiment it is proved, that this water is more charged with the particles of solid matter after rainy, than after fair weather.*

This water examined by Farenheit's thermometer constantly at 12 of the clock in the day from the middle of August to the middle of September 1760, and compared with the heat of the atmosphere, and that of well water, showed the medium heat of each to be as follows :

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* The great falls of rain during the first months of this winter induced me to send for some of this water to London. I received it in the beginning of January, and made every necessary trial, expecting to obtain a larger quantity of ochre in the residuum from a given quantity of the water. But I acknowledge I was greatly disappointed, and it appeared to me, that the quantity of ochre was decreased by the extraordinary dilution: so that the above observation must be understood with a restriction.

	Degrees
Atmosphere............	65
Mineral water	56
Well water............	52

And the same proportion was nearly observable between the heat of the atmosphere, and that of the mineral water when tried in the morning early or at night, while that of the well water never varied.

When the column of mercury in this thermometer rose to seventy-two degrees within the walls which surround the spring, and where the confined and reflected heat of the sun made it rise four degrees higher than the common atmospherical heat did, yet the water, by its being immerged in it, soon reduced it to fifty-eight degrees, which was the warmest state I ever saw the water in : at all other times the mineral water was at a medium nine degrees cooler than the atmosphere, and four degrees warmer than the well water ; so that from its constant temperature it was ever grateful to the stomach.

Having thus made as many observations on this water in its natural and unmixed state, as I apprehended necessary to assist me in the investigation of its powers, I determined to try it with the infusions of vegetable substances, the syrup of violets, the acid of distilled vinegar, and the preparation of sugar of lead, into whose composition vinegar enters.

The infusion of campeachy-wood (whose colour when made with pure water resembles Burgundy wine) mixed with this water, changed immediately to a deep purple, and in a few hours the colouring matter subsided with the ochre of the water in an inky sediment.

This water changed the pleasing crimson colour of the infusion of cochineal to a light purple in the very act of mixing; in some hours the colour became darker, and in a longer time the whole subsided in an atro-purpureous sediment.

With an infusion of galls the water became of a purple colour almost instantaneously, then black, and by keeping, the whole settled with the ochre, at the bottom of the phial.

Nearly the same colour was produced by mixing this water with an infusion of green tea; but not so immediately. And the same effects were observable, though the infusions were added to this water, long exposed to the open air; and the infusion became equally black, though the water was boiled before it was added to the tea in substance. These two facts prove the mineral with which this water is impregnated to be of a permanent nature.

I immerged two bottles in the water at the spring early in the morning at its first uncovering; each bottle had in it two drachms of the syrup of violets, and was capable of containing two ounces. The one I filled, the other I took up when half full, having previously corked them in the water. I examined them with all possible attention, and could not perceive any change in the colour of the syrup at first mixing; in near a minute's space of time a pale green colour began to appear; and in this change the diluted colour of the full bottle soonest showed the commencing alteration. This change increased gradually, and in less than an hour the whole was of a deep grass green.

Being kept a fortnight they varied exceedingly in their appearances: the full bottle deposed its sediment, and left the water changed with the blue colour of the violets, the half-full bottle deposed its sediment, leaving the incumbent water of a pleasing crimson colour.

To account for this (as far as I know) unobserved appearance, I shall, I flatter myself, be indulged in hazarding the following solution. The syrup in each bottle fermented so considerably as to expel its cork; in that act the acid, detaching itself from its saccharine basis, and finding sufficient ochre and earth in the full bottle to incorporate with, was deposed in sediment, leaving the uninjured colour of the violets to tinge the water; but in the half-full bottle, the subsidence was made proportionable to the quantity of water; while the unabsorbed acid wanting more ochre and earth, changed the colour of the water to a crimson: the constant effect produced by acids, when added to the violet blue.

With the vegetable acid of distilled vinegar, no change of colour or intestine motion ensued on mixing with the water. When kept some little time, the accustomed sediment was deposed of a brown colour, rather brighter than in the unmixed way.

To two ounces of this water I added ten drops of the solution of sugar of lead in distilled water; the natural milky colour of the water was somewhat increased, and in a few hours a whitish powder adhered to the sides of the glass like a magistery; at the usual time a sediment of a darker colour was deposed, like ochre thinly covered with the impregnating lead of the solution.

I then tried it with substances partaking of the vegetable and animal nature; with a solution of soap in alcohol this water refused all sort of union, and would not incorporate with it either hot or cold. With a double quantity of water to milk when cold, no change arose but in the diluted colour of the milk: when boiled together in this proportion, the milk coagulated.

The next trials I made were with the mineral acids. With the weak spirit of vitriol, there appeared no intestine motion, and the transparency of the water became much improved. Seven months have now elapsed since I added six drops of this acid to two ounces of the water at the spring, and no sediment has as yet been deposed. The power of this acid is fully illustrated in its not only preserving and improving the pellucidity of this water, but also in recovering it when lost; to two ounces of this water which had deposed its sediment completely, I added six drops of this acid, and in less than twenty-four hours, the brightness of the water was again restored, and the deposed sediment again suspended.

The stronger mineral acids produce the same effects; Glauber's spirit of nitre, his spirit of sea-salt, and the strong spirit of vitriol, preserve and recover the pellucidity of this water, in a proportion relative to their strength compared with the weaker ones.

Lastly, I added three drops of the solution of silver in spirit of nitre to two ounces of the water; a milkiness appeared instantaneously, which soon changed to a pearl colour, and, in some time, to a light purple; after some hours the whole settled in a large grumous sediment of a dark purple colour.

I then tried this water with the solutions of substances in their natural alcalescent, and afterwards with the volatile and fixed alcaline salts.

To two drachms of distilled water strongly impregnated with alum, I added two ounces of this water: no ebullition, no change of colour appeared. In a few hours the water was foul, and at the expiration of twenty-four, a sediment was deposed in colour whiter than in the unmixed water, in quantity only equal. This appears demonstrated by adding the solution in the same proportion, to water stripped of its ochre by subsidence and filtration, in which case no sediment appears.

A saturated solution of lime in distilled water answers in the same manner as in the preceding experiment.

Ten drops of the lixivium of tartar being added to two ounces of this water, produced not the least intestine motion; but the colour of the water immediately changed to that of mountain wine, with a greenish hue near the surface; it soon grew muddy, and at length the tinging matter subsided in a light orange coloured sediment.

The volatile spirit of hartshorn mixed in the same proportion with this water, had nearly the same appearance. But when the mixture was made at home, and not agitated by carriage, a film floated in the middle of the water, and the usual sediment was deposed, of a dark colour, as if the spirit had engaged the lighter particles of ochre escaping to the surface and sides of the vessel, and suspended them in a cloud, the heavier and grosser falling to the bottom.

With the spirit of sal ammoniacum in the same proportion to the water, nothing appeared differing from the last experiment, excepting that the sediment deposed was more grumous and lumpy.

By these various observations, and experiments made with the mixture of different substances and this water, as necessary to the illustrating its nature, it appears manifestly, that this water contains a large portion of air, part of which is incoercible; that, by the escape of this air, or, perhaps, from an original want of a sufficiency of acid, this water loses by carriage from the spring its transparency, and deposits a considerable quantity of heavy ochre, having first detached its lighter particles to the surface of the liquid and sides of the containing vessel. That it neither ferments with acids nor alcalis; that the pellucidity of this water is preserved, improved, and recovered if lost, by a small addition of any mineral acid; but destroyed, if an alcali, either fixed or volatile, be added to it: from hence it may be inferred, that acids are more congenial to this water than alcalis.

In the further investigation of the nature of this water, I put three pounds or pints of it into a wide mouthed vessel previously weighed, and evaporated it with a gentle sand-heat to a dryness; an increase of weight was obtained equal to forty one grains. At the sides of the vessel were different strata of a light brown ochre varying some shades in colour, the brightest towards the top: below these was a stratum of a greenish cast, which was saltish, bitter, and styptic, deliquescing in a few hours. The bottom of the vessel was covered with a dark brown ochre, over the greatest part of which was spread a whitish earth; which viewed with the naked eye, and more so with the microscope, appeared to be of a plumose or feathery form, having here and there stelloide figures interspersed, emitting rays from a centre. Some of these I separated, upon the presumption of their containing the impregnating salt of this water, and when I tasted them they seemed of a styptic nature, with a little bitterness.

I dissolved this residuum in half a pint of warm distilled water: and having weighed a filtrating coffin of paper, I passed the solution through it. When the paper was dry, there was an increase of weight of eight grains; which, as near as I could guess, consisted of seven grains and upwards of ochre, the rest of the white earth undissolved, and inseparable from the ochre. The water thus filtrated, I evaporated with a slow sand heat fire to half its quantity; and observing a portion of white matter floating in it, I placed it in a cool cellar, hoping to obtain a christalized salt, but ineffectually. I then evaporated the remaining water, and the residuum consisted of this earth in its plumose form, with a few particles of the finer ochre: exposed again to the open air it attracted humidity, and the deliquium resembled in taste the bittern of sea salt. I repeated this process several times in the dry weather of the month of August, and obtained nearly the same quantity of the same matters.

I calcined the entire residuum of such an evaporation in an ignited crucible; it burned with scintillæ flying off, and a small degree of crackling inferior to that of sea salt: it blistered like borax, and when tasted and tried after calcination, had every characteristic of lime: it was of a dark red colour, with a few whitish specks, which were particles of the plumose earth, their feathery appearance being greatly diminished.

Thus calcined and tried with the loadstone, the residuum discovered no marks of contained iron: though it is certain were this ochrous earth impregnated with a proper phlegiston, it would be convertible into iron.

The ochre and the white earth tried separately and jointly, ferment not with alcalis nor acids; but when either is rubbed with the syrup of violets, so as to mix intimately with it, like all other earths, terrene or metallic, they change its colour to green.

Glauber's spirit of nitre, or sea-salt dropped on the white earth occasioned no effervescence; but the strong spirit of vitriol obliged it to emit an acid white vapour, resembling that of sea-salt: and the earth was converted into an insoluble selenite, impregnated with the spirit of vitriol, that of sea-salt being discharged.

The learned and laborious Pot, in his chymical exercises on common salt, treating of the various bodies produced by the union of the spirit of sea-salt with the different earths, asserts, that, " Nec ex creta & spiritu " salis generatur sal commune: renuit crystallizationem; " in tigillo carbonibus ignitis impositum spumescit " boracis instar, demum faciem calcis adustæ induit, " nullo modo ad instar salis crepitat; sed cum acido " vitrioli commissum mox spiritum salis eructat." This account of this new body corresponds so directly with the experiments made on the white earth of this water, that I am firmly persuaded it consists of a chalky basis, impregnated with the spirit of sea-salt. Perhaps the feathery form of some of its particles, may be owing to a mixture of gypsum; as the same author affirms, that when the spirit of sea-salt is insinuated into that body, " nec more salis communis crystallizatur, sed " tenuibus quasi filamentis & floccis concrescebat."

To ascertain with the greatest accuracy the nature and quantity of solid matter contained in this water, I took a small weighed retort to the spring, put three pints of water into it, luted on a recipient, having previously inserted a piece of blue paper between the junctures, and then committed the whole to a gentle sand-heat. As soon as the water began to warm, an immense quantity of air globules separated, and escapeing to the surface, the water became turbid with small particles of ochre floating through the mass, and increasing in bulk as the water grew warmer. When a small portion of the water had passed into the recipient, I unluted the vessels, examined the paper, and found it wet, without change of colour: and having tried the water in the recipient which appeared pure, I again luted on the receiver, and proceeded in the operation until the whole of the water had passed over the helm. I then weighed the retort, and found an increase of a drachm weight, equal to twenty grains of solid matter arising from each pint of the water.

In the examination of the last distilled water, the solution of silver in the spirit of nitre showed its want of purity, as a milkiness arose on the instilling a drop or two of it into the water: every other addition produced not the least change. This water I evaporated with the slowest fire possible, but the volatility of the impregnating matter was such, that it passed off with the water.

The appearance of the solid matter in the bottom of the retort was exactly the same as in the vessel after evaporation, and when subjected to the same trials, showed the same nature.

From this last experiment it is evident, that the quantity of solid matter really existing in a pint of this water, is at least equal to twenty grains.—That some of this matter of an ochrous nature and separable by subsidence, parts from the water as soon as it begins to warm, and runs into grumous lumps before it boils.—That this water is most abundantly stocked with a white earth impregnated with spirit of sea-salt, really pre-existing in the water before it be exposed to the action of the fire: whether capable of acting as an aperient and deobstruent, or proving the means of loading and obstructing the finer vessels, agreeable to the system of many writers on these subjects, is a question not easily determinable, though from its great solubility, I am inclined to believe the former. That the quantity of salt in this water, not admitting this soluble earth to be reckoned in that class, is so inconsiderable as not to shew its true nature with certainty; no part of the residuum even emulating salt, in any appearance or taste, excepting that which runs into deliquium, and which seems to be the tongue-like, a mater salis impregnated with a styptic matter, the finer particles of ochre being dissolved in it.

A water thus singularly saturated, drank without directions, or with very imperfect ones, must be presumed to have produced very great inconveniencies, as well as remarkable advantages in bodies well or ill disposed to receive its effects, and it was accordingly observed, that from the injudicious use of it, many people complained of little fevers, head aches, and hæmorrhoids: effects easily to be accounted for, if we but attend to the constipating power which this water must necessarily possess, from the quantity of ochre contained in it, and, if we reflect on its being drank in the same proportion as the Tunbridge water, upon the idle presumption of their being alike, we shall have less reason to be surprised at these effects, since it appears by Dr. Lucas's account of the latter, which is extremely exact, that a pint of it contains but two grains and three quarters of solid matter in it, as far as evaporation discovers: yet that of Brighthelmston, subjected to the same operation, yields in the same quantity thirteen grains and nearly three quarters.

The advantages which appeared to arise from the use of this water, drank in a proper quantity, were an increase of appetite and spirits; and in habits of a lax and feeble nature, an additional power of exercising without lassitude. Bodies therefore labouring under weakness, the consequences of irregular living, and illicit pleasures; or debilities arising from bad management in lyings in, &c. were by this water greatly relieved, and might, I am persuaded, under due regulation, be restored to perfect health, and the full exertion of those powers which debilitated nature cannot indulge them in.

The extraordinary fecundity of the sheep which drink this water, gives the shepherds of this place an opportunity of extolling its prolific power: but observation, as far as I can learn, does not as yet authorize any one to assert in its favour on this account as to the human species.

How far the nature of this water may be meliorated by dilution, adapted to some constitutions, by suffering the ochre to subside, and to others, by suspending it with the assistance of a congenial acid—how properly it may be drank unaltered, if assisted by an opening medicine, or used as a bracer after a purgative course of salt water, are matters not yet to be determined with precision.*

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* A more recent analysis of this spring by the late Dr. Henderson, describes its properties as follows :—

This water when first taken from the spring in a glass, in appearance greatly resembles a solution of emetic tartar in common water ; the taste is not unpleasant, something like that upon a knife, after it has been used in cutting lemons. It does not seem to contain the smallest portion of sulphur, it neither changes vegetable blues red, nor does it effervesce with alcaline salts, calcareous earths, magnesia or fossile alkali; neither does it change vegetable blues green, nor does it effervesce with acids ; yet it curdles soap, and renders a solution of it in various spirits milky.

It seems to contain a considerable portion of calcareous earth mixed with vitriolic acid in the form of its selenites, and also a considerable portion of iron, as will appear from the following experiment :—

Sixty-four ounces of this water by measure, being evaporated to dryness, there was a residuum of a brownish colour, full of spiculæ, weighing eight grains, four ounces of which, with an equal quantity of charcoal, was made into a paste with oil, and calcined ; on trying the calcined matter with the magnet, two pieces nearly in the metallic form adhered to it, and when put upon paper at the distance of half an inch, moved in every direction with the magnet ; these two pieces weighed one eighth of a grain.

The gross residuum neither effervesces with alkali, nor acids, and is sufficiently soluble in water.

This water becomes instantly transparent, like distilled water, on addition of any of the mineral acids, especially the vitriolic ; a solution of the galls in common water, added to an equal portion of this water, becomes black like ink in a few minutes.

That there are many infirm habits in this kingdom relievable by a course of this water judiciously varied, I, from experience, am well convinced of; and I flatter myself, that from this short account of it, my medical readers will believe it deserves the utmost attention.

The chalybeate has been found serviceable in several cases of general debility, crapulas, indigestion, atony of the stomach, fluor albus ; and in all those diseases, where chalybeate and tonic remedies are required, it promises under due regulation to be useful.—Ed.

APPENDIX, *(See Page* 14.*)*

His Grace the Duke of Newcastle, then Prime Minister

The Earl of Ashburnham, father of the present Earl

The Bishop of Chichester, (Sir Wm. Ashburnham, Bart.)

The Lord Abergavenny, father of the present Earl.

The Lord Delawarr, great uncle of the present Earl. This noble family had formerly large possessions in Sussex—Sheffield Place sold to the grandfather of the present Earl of Sheffield—Offington Place sold to the family of Margesson—the present Earl of Delawarr by his marriage with one of the daughters and co-heiresses of the late Duke of Dorset, is become a large landed proprietor in the county.

Lord Viscount Gage, the great uncle of the present Viscount

Sir Francis Poole, Bart. of Lewes—succeeded by his son Sir Ferdinando Poole, who was succeeded by his nephew the Rev. Sir Henry Poole, Bart. of the Hook. He died *s. p. m.*

Richard Russell, M.D. the eminent Physician

Thomas Pelham, of Stanmer, grandfather of the present Earl of Chichester

Henry Poole, M.D.

John Bridger, (afterwards Sir John Bridger,) who left an only child, the present Lady Shiffner of Combe

John Fuller, father of John Fuller, Esq. late M.P. for Sussex

John Lade (afterwards Sir John Lade,) father of the present Baronet

Nath. Newnham, father of George Lewis Newnham of Newtimber, by whose son the Sussex estate has been alienated to —— Gordon, Esq.

Elfred Staples, } Barristers and Magistrates for the county
Henry Humphrey, }

Henry Campion, of Danny, grandfather of its present possessor

Thomas Western, grandfather of the present M.P. for Essex, by whom the Sussex estates were sold to the late Wm. Roe, Esq. and Wm. Stanford, Esq.

Ralph Thrale, the eminent Brewer, brother-in-law of the late Sir John Lade, Bart.

Wm. Watson, Wm. Poole, Luke Spence, (of Malling)

The Rev. Henry Michell, (45 years vicar of Brighthelmston)

The Rev. George Lewis

Charles Scrase, who purchased a moiety of the manor of Brighthelmston: succeeded in his estates by his grandson Charles Scrase Dickins, Esq. whose only son has lately married a sister of the Marquis of Northampton—William Michell, James Michell, Richard Lemon, Jun. Edward Davis, Richard Harman, Dighton Elgate, Richard Tidy, Philip Mighell Jun.—Thomas Friend, of Lewes, who purchased the other moiety of the manor of Brighthelmston, devising it to his nephew the late Thomas Kemp, Esq. M.P. for Lewes, (father of the present Member, Thomas Read Kemp, Esq.)—Richard Mighell, William Hicks, William Lucas, Samuel Shergold, John Turner, James Willett, Henry Kipping, Thomas Kent, James Ridge, Hugh Saunders, William Grover, Francis Downer, Thomas Roberts, Samuel Foster, Robert Davis, Mill Pellett, and Hilborne Withy.

The then principal Inhabitants of the town are comprised in these latter names, many of whose descendants continue there.

THE END.

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